Gahagan & Bryant Associates, Inc.
10541 Humbolt Street
Los Alamitos, CA 90720
(310) 521-8127

Mr. Richard Greenwood
Statewide Geophysical Survey Coordinator
California State Lands Commission
Mineral Resources Management Division
200 Oceangate, 12th Floor
Long Beach, CA 90802-4331

September 15, 2017

RE: Proposed Geophysical Survey Offshore of Sycamore Cove Beach, Malibu, CA

Dear Statewide Geophysical Survey Coordinator:

The proposed survey is located offshore of Sycamore Cove Beach, Malibu, CA. Survey will be 5 beach transects from a safe distance nearshore to approximately 2,500' offshore. (see Figure 1.) The survey area does not impact any Marine Protected Areas (MPA) (see Exhibit E.) The objective of the survey is to obtain data for modeling purposes. The bathymetry of the 5 transects will be surveyed using a multi beam transducer (R2 Sonic 2024.) The multi beam survey will be conducted on the survey vessel "Tati B." Survey vessel information is contained in Exhibit A.

The sonar equipment used during the survey is low energy. All the sonar equipment has been utilized on surveys within the last few months and has performed to the manufacturer's specifications. Once on site and prior to deployment in the water, all equipment undergoes a visual inspection to make sure all connections are secure and there is no damage to any cables/connections or equipment. After a physical check of the equipment, the sonar devices are powered on deck and checked to make sure that everything is in working order. The manufacturer's internal system software will confirm the system is operating properly and there are no grounding, voltage or fault issues. Once all system checks are verified, the equipment is set to the minimal power settings (if applicable) and deployed. Once deployed, the equipment will be powered up slowly to obtain an optimal data set. The manufacturer's specification sheets are contained in Exhibit B. A description of the characteristics of the sonar equipment is provided in Exhibit F.

Survey operations will occur only during daylight hours to enable the marine mammal observer aboard to identify any marine life that may enter the survey area so we may cease acoustic firing until the specified safety zone is cleared. The source energy level for this type of equipment is low and the potential for impact to marine life is minimal. One marine mammal observer will be onboard during multi beam data collection. Marine mammal observer qualifications will be submitted to Monica DeAngelis (monica.deangelis@noaa.gov.) The proposed marine mammal observers' qualifications are contained in Exhibit C.

The proposed survey window is from October 09-14, 2017. The actual survey should only take 1 day. The additional days are to account for a weather window to safely navigate in the open ocean. The length of time operating the acoustic profiling equipment should only be 6-8 hours per day. All required survey notifications are contained in Exhibit D.

The pre survey geophysical survey checklist is contained in Exhibit G. Please call if you have any questions regarding GBA's proposed geophysical survey 310-521-8127 or 310-261-1612.

Sincerely,

David J. Eller
Vice President, West Coast Survey Manager

Attachments:

- Exhibit A – Survey Vessel Information
- Exhibit B – Equipment Specifications
- Exhibit C – Marine Mammal Observer Qualifications
- Exhibit D – Survey Notifications
- Exhibit E – Marine Protected Areas Map
- Exhibit F – Pre-Survey Notification Form
- Exhibit G – CSLC Pre-Survey Notification
- Marine Wildlife Contingency Plan
- Oil Spill Contingency Plan

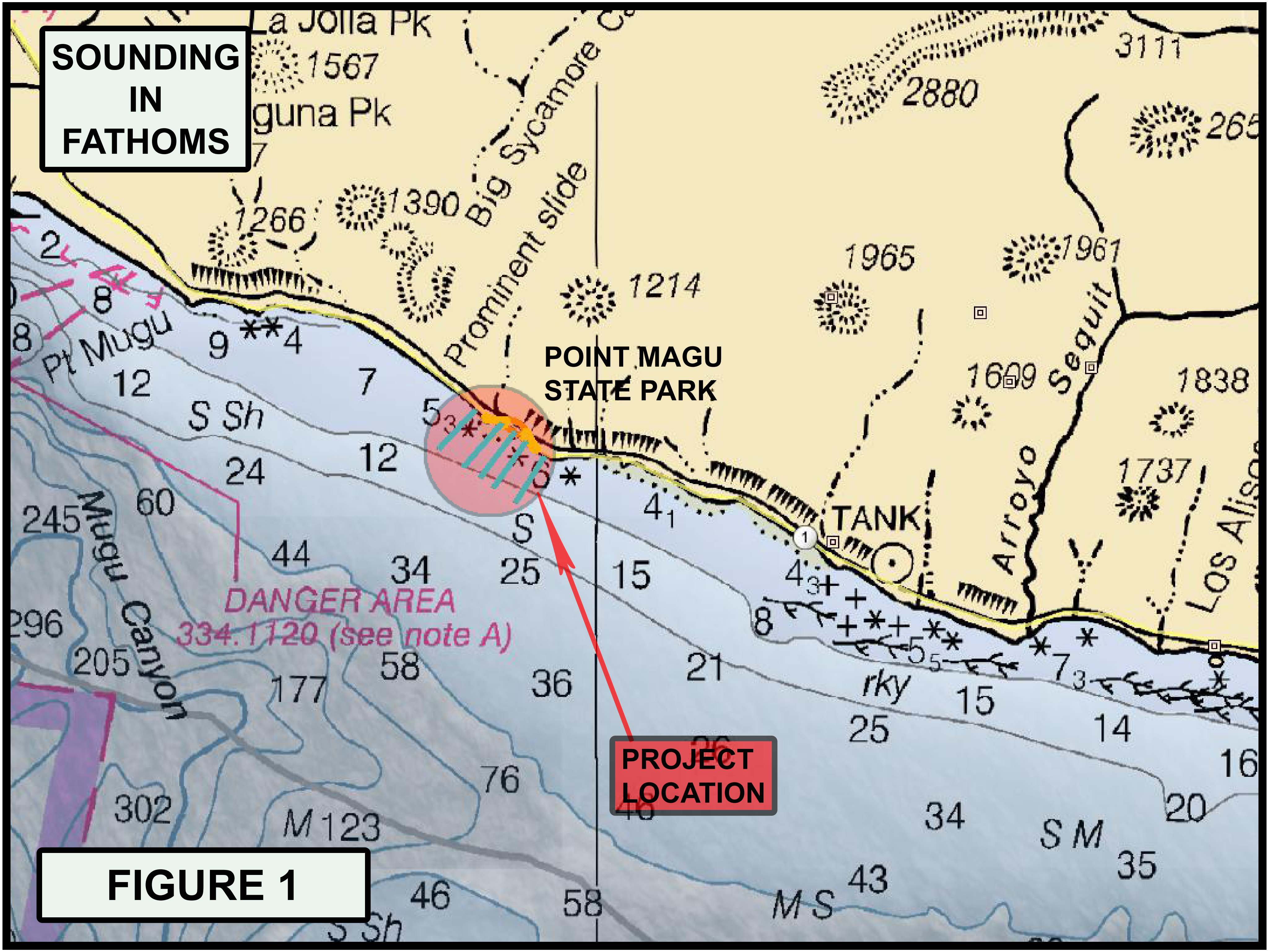

SOUNDING
IN
FATHOMS
POINT MAGU
STATE PARK
PROJECT
LOCATION
La Jolla Pk
Big Sycamore
Prominent slide
Pt Mugu
Mugu Canyon
DANGER AREA
334.1120 (see note A)
TANK
Arroyo
Sequit
S Sh
rky

FIGURE 1

MULTIBEAM TRACKLINES (NAD 83 zone 5 feet)								
Line #	Start Point		End Point		Start Point		End Point	
	Easting	Northing	Easting	Northing	Latitude	Longitude	Latitude	Longitude
Transect_1	6253276.17	1850242.75	6251566.74	1848464.57	34.07226435	119.0183466	34.06733069	119.0239312
Transect_2	6254489.99	1849634.5	6252688.5	1847633.75	34.07062677	119.0143184	34.06507917	119.0201996
Transect_3	6255092.25	1849241.02	6253461.97	1847149.15	34.06956228	119.0123168	34.06376917	119.0176297
Transect_4	6255604.27	1848803.75	6254063.56	1846688.62	34.06837494	119.0106116	34.06252048	119.0156281
Transect_5	6256428.07	1848110.04	6255074.66	1846015.35	34.06649154	119.0078687	34.06069854	119.0122676

GBA
ENGINEERS ★ SURVEYORS

Exhibit A:

The survey vessel “Tati B” is a 27’ mono hull vessel built by Thomas Marine in 2009. The vessel is powered by two outboard Honda 4 Stroke gasoline engines with a three star rating. The fuel capacity is 185 gallons. Only diesel engines are required to comply with the CARB Tier 2 Certification. We will not exceed the daily NOx emissions since our vessel only holds 185 gallons of fuel. Our anticipated maximum fuel consumption should be less than 30 gallons. The survey vessel “Tati B” will be conducting the multi beam survey. A picture of the survey vessel “Tati B” is also in our Local Notice to Mariners.

GBA
ENGINEERS ★ SURVEYORS

Exhibit B:

2 SONIC SPECIFICATIONS

2.1 Sonic 2024 System Specification

System Feature	Specification
Frequency	400kHz / 200kHz
Beamwidth – Across Track (at nadir)	0.5°@ 400kHz / 1.0° @ 200kHz
Beamwidth – Along Track (at nadir)	1.0° @ 400kHz / 2.0° @ 200kHz
UHR Beamwidth (at nadir)	**0.3° Across Track x 0.6° Along Track**
Number of Beams	256
Swath Sector	10° to 160° (user selectable)
UHR Swath Sector	**10° to 60°** (user selectable)
Maximum Slant Range	1200 metres
Pulse Length	15µSec – 1000µSec
Pulse Type	Shaped Continuous Wave (CW)
Depth Rating	100 metres (3000 metres optional)
Operating Temperature	-10° C to 40° C
Storage Temperature	-30° C to 55° C

Table 2: System Specification

2.2 Sonic 2022 System Specification

System Feature	Specification
Frequency	400kHz / 200kHz
Beamwidth – Across Track (at nadir)	1.0°@ 400kHz / 2.0° @ 200kHz
Beamwidth – Along Track (at nadir)	1.0° @ 400kHz / 2.0° @ 200kHz
UHR Beamwidth (at nadir)	**0.6° Across Track x 0.6° Along Track**
Number of Beams	256
Swath Sector	10° to 160° (user selectable)
UHR Swath Sector	**10° to 60°** (user selectable)
Maximum Slant Range	1200 metres
Pulse Length	15µSec – 1000µSec
Pulse Type	Shaped Continuous Wave (CW)
Depth Rating	100 metres (3000 metres optional)
Operating Temperature	-10° C to 40° C
Storage Temperature	-30° C to 55° C

2.3 Sonic 2024 Dimensions and Weights

Component	Dimensions (L x W x D) / Dry Weight
Receiver Module	480mm x 109mm x 190mm / 12.9kg
Projector	273mm x 108mm x 86mm / 3.3kg
Sonar Interface Module (SIM)	280mm x 170mm x 60mm / 2.4kg
I2NS Sonar Interface Module (SIM)	280mm x 170mm x 126.4mm / 4.2kg
Receive module and Projector mass in water	**5.9kg (Fresh)**

Table 3: Component Dimensions and Mass

2.4 Sonic 2022 Dimensions and Weights

Component	Dimensions (L x W x D) / Dry Weight
Receiver Module	276mm x 109mm x 190mm / 7.7kg
Projector	273mm x 108mm x 86mm / 3.3kg
Sonar Interface Module (SIM)	280mm x 170mm x 60mm / 2.4kg
I2NS Sonar Interface Module (SIM)	280mm x 170mm x 126.4mm / 4.2kg
Receive module and Projector mass in water	**4.0kg (Fresh)**

2.5 Sonic 2024/Sonic 2022 Electrical Interface

Item	Specification
Mains Power	90 – 260 VAC; 45 – 65 Hz
Power Consumption (SIM and Sonar Head)	75 Watt (Sonic 2022: 54 Watt)
Power Consumption (Sonar Head Only)	50W avg.; 90W Peak (Sonic 2022: 35W avg.; 70W Peak)
Integrated Inertial Navigation System (I2NS)	38.4W (SIM and IMU with Antennas)
Uplink/Downlink	10/100/1000Base-T Ethernet
Data Interface	10/100/1000Base-T Ethernet
Sync IN/OUT	TTL
GPS Timing	1PPS; RS232 NMEA
Auxiliary Sensors	RS232 / Ethernet
Deck Cable Length	15 metre (optional to 50 metres)

Table 4: Electrical Interface

2.6 Sonic 2024/2022 Ping Rates (SV = 1500.00m/sec)

RANGE	PING RATE
2 - 7	60.0
10	55.4
15	39.4
20	30.6
25	25.0
30	21.1
35	18.3
40	16.1
50	13.0
70	9.4
100	6.7
150	4.5
200	3.4
250	2.7
300	2.3
400	1.7
450	1.5
500	1.4
700	1.0
1000	0.7
1200	0.6

Table 5: Ping Rate table

WARNING

THE RECEIVE MODULE IS FILLED WITH OIL THAT WILL FREEZE TO A SOLID AT -10°C. STORAGE BELOW THIS TEMPERATURE (TO -30°C) IS POSSIBLE IF THE HEAD IS SLOWLY THAWED OUT PRIOR TO OPERATION.

Exhibit C:

JENNIFER N. SMITH **Marine Mammal Observer**

EXPERIENCE SUMMARY

Received certification as Marine Mammal Observer from National Marine Fisheries Services in 2014. Ten years of experience at conducting environmental monitoring in southern California. Efficient in data collecting and analysis of nearshore marine surveys. Experience in benthic infauna collection and laboratory sorting, fish and invertebrate taxonomic identification, otter trawl, and beach seines.

EDUCATION

B.S. Marine Biology: California State University, Long Beach. 2007
Relevant Coursework: Fisheries and Conservation, Marine Mammology.

PROFESSIONAL HISTORY

MBC Applied Environmental Sciences. Associate Technician, 2010-present; Assistant Technician, 2009-2010.

Ecorp Consulting, Inc. Aquatic Intern, 2007.

PROJECT EXPERIENCE

Marine Mammal Monitoring. National Marine Fisheries Service-certified marine mammal observer monitoring construction projects in the Ports of Los Angeles and Long Beach to ensure no impacts to marine mammals as a result of construction activities and associated sound produced.

Marine Mammal Care Center. Participated as an animal care assistant working largely with northern elephant seals, sea lions, and harbor seals documenting and improving their health for future release.

Coastal Generating Station NPDES Monitoring Studies. Staff biologist for quarterly and biannual NPDES monitoring studies at 11 coastal generating stations from Ventura County to San Diego County. Tasks include identification of fish and macroinvertebrate captured in trawls. Conducts observations and identifications of marine birds and mammals during field surveys.

Invasive Species Removal in the Santa Margarita River. Assisted on the identification and collection of invasive species using net and beach seines, electric shock fishing. Monitoring the population of native species found during surveys.

JENNIFER L. RANKIN **MARINE MAMMAL OBSERVER**

EXPERIENCE SUMMARY

Over ten years of experience in ecological monitoring, both terrestrial and marine. Proficient in data collecting and analysis of nearshore marine surveys, especially GIS-based spatial analysis. Serves as MBC's principle GIS analyst and technician in charge of map preparation and analysis. Received certification as Marine Mammal Observer from National Marine Fisheries Services in 2014.

EDUCATION

B.S., Forestry; minor in Environmental Ethics, Humboldt State University, 2003.
Certificate, GIS, California State University Fullerton Extended Education, 2008.

PROFESSIONAL HISTORY

MBC Applied Environmental Sciences. Technician, 2007 to present; Associate Technician, 2007 to 2007; Assistant Technician, 2006 to 2007.

USDA Forest Service, Pacific Northwest Research Station. Forestry Technician May 2005 to November 2005.

USDA Forest Service, Rocky Mountain Research Station. Forestry Technician, June 2004 to October 2004.

USDA Forest Service, Stanislaus National Forest. Information Receptionist, 2002 to 2003.

PROJECT EXPERIENCE

Marine Mammal Monitoring. National Marine Fisheries Service-certified marine mammal observer monitoring construction projects in the Ports of Los Angeles and Long Beach to ensure no impacts to marine mammals as a result of construction activities and associated sound produced.

Kelp Consortium. Image analyst and GIS technician charged with geoprocessing aerial photographs of coastal California from Santa Barbara to the US-Mexico border. Compiles images of giant kelp beds throughout the area, generates map series, and calculates kelp canopy area by California Department of Fish and Game kelp bed designation using Spatial Analyst in the desktop ArcGIS 10.1platform.

Coastal Generating Station NPDES Monitoring Studies. Technician involved with data collection and report preparation for biannual NPDES water quality monitoring at 11 coastal generating stations from Ventura County to San Diego. Clients included the Los Angeles Department of Water and Power, Southern California Edison Company, AES Corporation, Houston Industries, NRG Energy, Inc., Reliant Energy, and Sempra Energy. Monitoring responsibilities sediment and infauna collection using van Veens, intertidal and subtidal surveys.

DAVID J. SCHUESSLER, JR. **Marine Mammal Observer**

EXPERIENCE SUMMARY

Received certification as Marine Mammal Observer from National Marine Fisheries Services in 2014. Seven years of experience at conducting environmental monitoring in southern California. Efficient in data collection and analysis of nearshore marine surveys. Experienced in stormwater sampling, benthic infauna collection and laboratory sorting, fish and invertebrate taxonomic identification and collection, eelgrass and *Caulerpa* surveys, otter trawl, and beach seines.

EDUCATION

B.S. Marine Biology: California State University, Long Beach. 2010

USC Wrigley Institute of Environmental Studies, Catalina Island. 2009

Relevant Coursework: Fisheries and Conservation Biology, Ecology of Marine Communities.

PROFESSIONAL HISTORY

MBC Applied Environmental Sciences. AssociateTechnician, 10/2010 - Present.

CSULB - Biological Sciences. Assistant Marine Technician, 1/2008 - 9/2008

PROJECT EXPERIENCE

Marine Mammal Monitoring. National Marine Fisheries Service-certified marine mammal observer monitoring construction projects in the Ports of Los Angeles and Long Beach to ensure no impacts to marine mammals as a result of construction activities and associated sound produced.

Coastal Generating Station NPDES Monitoring Studies. Staff biologist for quarterly and biannual NPDES monitoring studies at 11 coastal generating stations from Ventura County to San Diego County. Tasks include identification of fish and macroinvertebrate captured in trawls. Conducts observations and identifications of marine birds and mammals during field surveys.

Oceanographic and Biological Studies. Conducted field studies for a proposed desalination facility offshore Marine Corps Base Camp Pendleton (Oceanside). Study components included: measurements of temperature by thermistor chain, measurement of currents by acoustic Doppler current profilers (ADCPs), trawls, subtidal reef surveys, sediment grabs, and water quality profiles.

Exhibit D:

Gahagan & Bryant Associates, Inc.
10541 Humbolt Street
Los Alamitos, CA 90720
(310) 521-8127

GBA
ENGINEERS ★ SURVEYORS

Geophysical Survey Notification List:

Local Notice to Mariners was sent on September 15, 2017 to the following:

Commander
11th Coast Guard District
Building 50-2
Coast Guard Island
Alameda, CA 94501-5100
E-Mail: d11Inm@uscg.mil

In addition the same notification was sent on September 15, 2017 to the following:

Channel Islands Harbor Patrol
Gary.Hirtensteiner@ventura.org

Ventura Harbor Patrol
JHiggins@venturaharbor.com

Ventura Dive & Sport
vdsstaff@venturadive.com

Channel Islands Dive Adventures
info@channleislandsdiveadventures.com

Raptor Dive Charter
Staff@raptordive.com

Gahagan & Bryant Associates, Inc.
10541 Humbolt Street
Los Alamitos, CA 90720
(310) 521-8127

Commander
11th Coast Guard District
Building 50-2
Coast Guard Island
Alameda, CA 94501-5100

September 15, 2017

Attention: Local Notice to Mariners
Phone No. 510.437-2970 Fax No. 510.437-5836
E-Mail: d11Inm@uscg.mil

Subject: Notice to Mariners for a Geophysical Survey off the Coast of Malibu, CA

1. **NAME OF FIRM:** Gahagan & Bryant Associates
   10541 Humbolt Street
   Los Alamitos , CA 90720
   Phone No. (310) 261-1612

2. **TYPE OF OPERATION:** Multi beam survey of 5 beach transects from a safe distance nearshore to approximately 2,500' offshore. (see attached figure)

3. **LOCATION/POSITION INFORMATION:** See attached figure

4. **START AND END DATES:** Operational weather window will be from October 9-14, 2017. This survey will be weather dependent. The actual amount of time to collect the geophysical survey data will only take 1 day. Survey operations will be during daylight hours only.

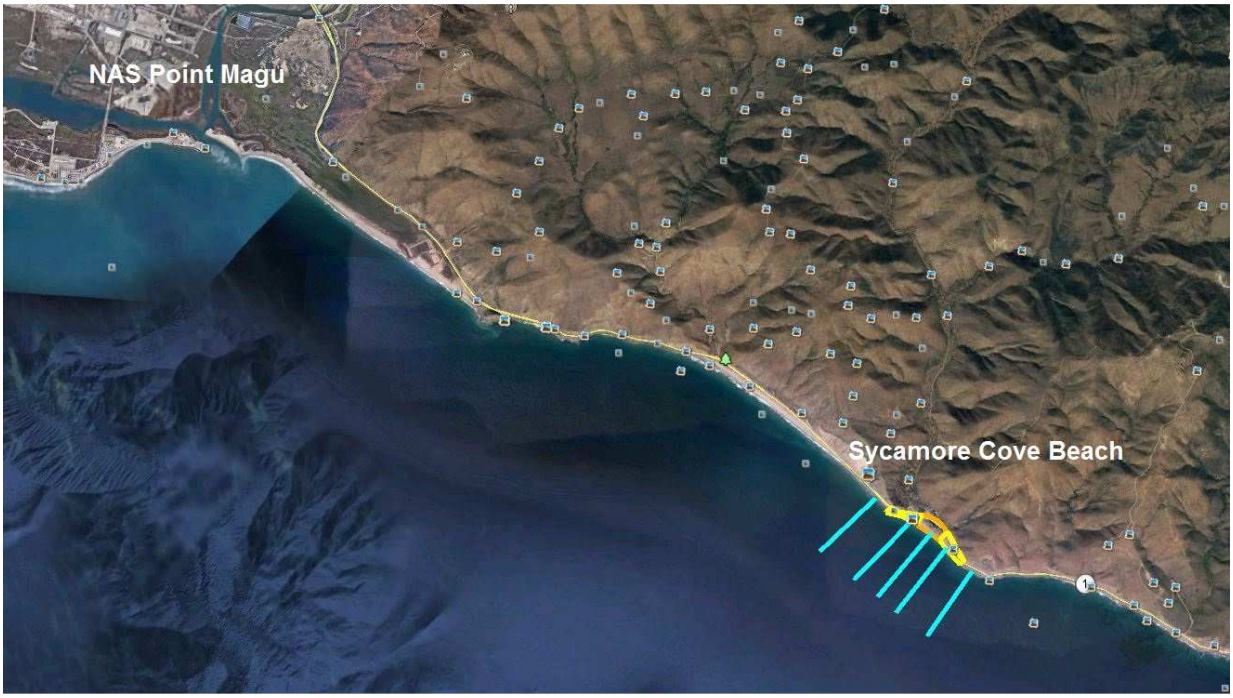
5. **VESSELS INVOLVED:**
   Survey Vessel "Tati B"

6. **RADIO: YES** NO **VHF-FM FREQ's MONITORED:** 16 and 71

7. **OTHER PERTINENT INFORMATION:**

   The multi beam survey is hull mounted to the survey vessel "Tati B."

   POC NAME AND TELEPHONE NUMBERS:
   1. David Morse, Captain SV "Tati B" 310-606-9614
   2. Alan Del Pilar, Project Manager 562-858-4417
   3. David Eller, West Coast Operations 310-261-1612


NAS Point Magu
Sycamore Cove Beach


Multibeam Boat
“ TATI B”
GBA SURVEY

David Eller

From: David Eller
Sent: Friday, September 15, 2017 8:44 AM
To: 'D11LNM@uscg.mil'
Cc: 'Gary.hirtensteiner@ventura.org'; 'jhiggins@venturaharbor.com'; 'staff@raptordive.com'; 'info@channelislandsdiveadventures.com'; 'vdsstaff@venturadive.com'
Subject: CSLC PRC9165 - Local Notice to Mariners
Attachments: CSLC NTM Sycamore.pdf

All:

Per the requirements of our CSLC permit 9165, Gahagan & Bryant (GBA) is required to give notification of our intended surveys offshore of Sycamore Cove Beach occurring in early October. We will be conducting a multi beam survey from a safe distance nearshore to approximately 2,500' offshore. Please call the numbers below if you have any questions

David J. Eller
Vice President
Gahagan & Bryant Associates
Los Angeles Division
310.521.8127 (W)
310.261.1612 (C)
Djeller@gba-inc.com

Exhibit E:

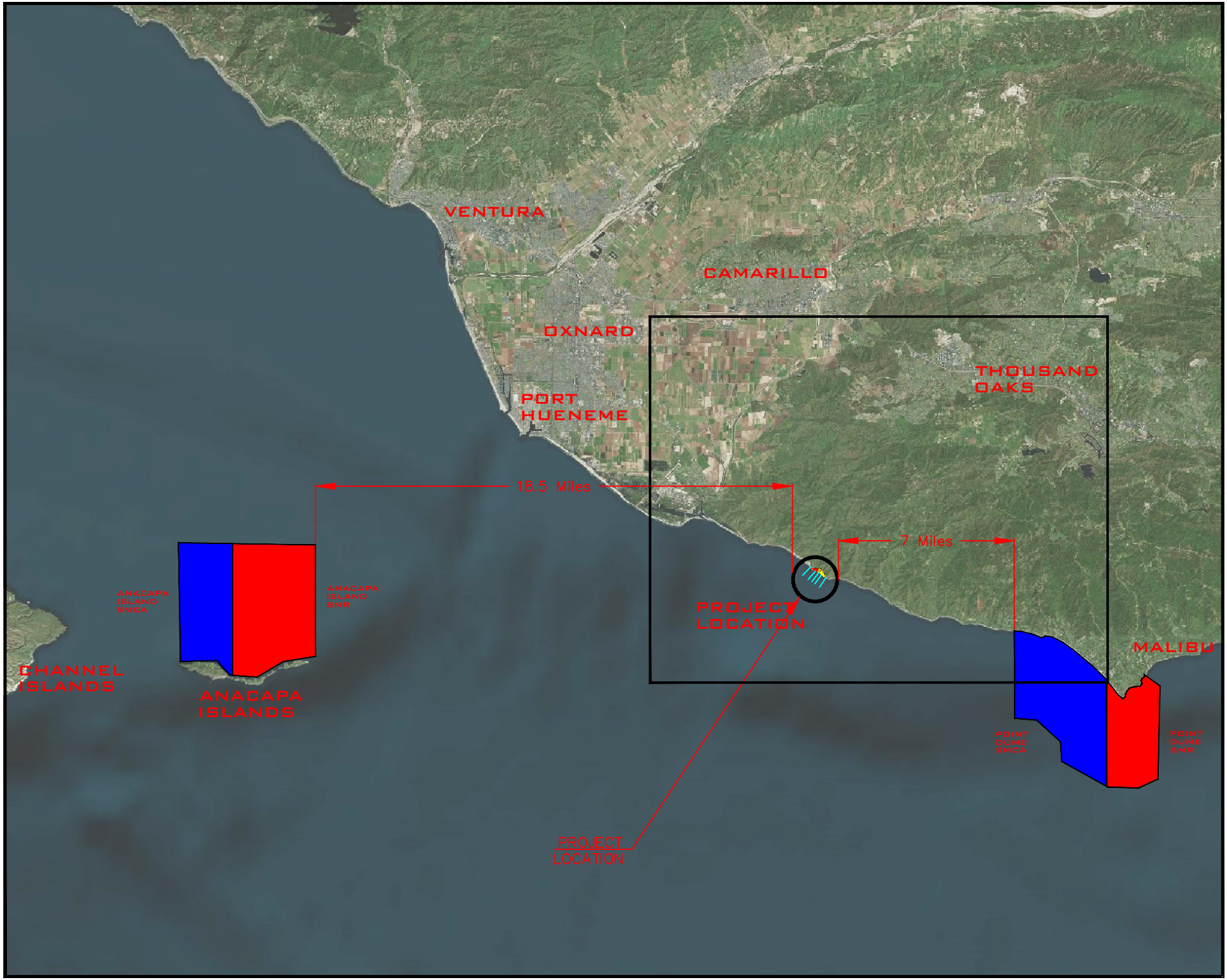

VENTURA
CAMARILLO
OXNARD
PORT HUENEME
THOUSAND OAKS
18.5 Miles
7 Miles
PROJECT LOCATION
ANACAPA ISLAND SMCA
ANACAPA ISLAND SMR
CHANNEL ISLANDS
ANACAPA ISLANDS
MALIBU
POINT DUME SMCA
POINT DUME SMR
PROJECT LOCATION

EXHIBIT F

PRESURVEY NOTIFICATION FORM

Date: 15-Sep-17

Applicant/Permittee's Mailing Address
Gahagan & Bryant Associates (GBA)
10541 Humbolt Street
Los Alamitos, CA 90720

Jurisdiction: Federal: ____ State X Both ____
If State: Permit #PRC PRC 9165
Region: Statewide
Area:

GEOPHYSICAL SURVEY PERMIT

Check one: X New survey ____ Time extension of a previous survey

GBA (Applicant/Permitte) will conduct a geophysical survey offshore California in the survey area outlined on the accompanying navigation chart segment. If you forsee potential interfernce with the commercial fishing or other activities, please contact the person(s) listed below:

FEDERAL WATERS (outside 3 nautical miles)
1) Applicant's representative
2) Federal representative (e.g. Bureau of Ocean Energy Management [BOEM] or National Science Foundation [NFS])
Note: Any comments regarding potential conflicts in Federal Waters must be received by the Applicant's representative and lead Federal agency within ten (10) days of receipt of this notice.

STATE WATERS (inside 3 nautical miles)
1) Permittee's representative
2) CLSC representative
Note: Any comments regarding potential conflicts in State Waters should be received as soon as possible by the Permittee's representative, no more than fifteen (15) days after the receipt of this notice.

1. Expected Date of Operation: October 09-14, 2017 (weather/tide dependent survey, should only take one day)
2. Hours of Operation: 0700- 1700 hrs (daylight hours)
3. Vessel Name: Survey Vessel "Tati B" (multi beam)
4. Vessel Official Number: DE 17561
5. Vessel Radio Call Sign: N/A - no longer required by Feds
6. Vessel Captain's Name: David Morse
7. Vessel will Monitor Radio Channel(s): 16
8. Vessel Navigation System: GPS
9. Equipment to be used: R2 Sonic 2024 multi beam
   a. Frequency (Hz, kHz): 200 kHz
   b. Source level (db re 1uPa at 1 meter (m) [root mean square (rms)]: 221
   c. Number of beams, across track beam width, and along track beamwidth: MB: 256 beams, 2 deg @ 200 kHz, 2 deg @ 200 kHz
   d. Pulse rate and length: 15usec- 1000usec
   e. Rise time: 0.05 ms
   f. Estimated distances to the 190 dB, 180 dB, and 160 dB re 1uPa (rms) isopleths: see table below

Source	Dist to 160 dB m	Dist to 180 dB m	Dist to 190 dB m
Multi beam	90	50	30

   g. Deployment depth: 3'
   h. Tow speed: 5 knots
   i. Approximate length of cable tow: n/a

Applicant's Representative:
David J. Eller
Vice President, West Coast Survey Manager
772 Tuna Street
San Pedro, CA 90731
djeller@gba-inc.com

BOEM Representative:
Joan Barminski
Chief, Office of Reservoir & Production
770 Paseo Camarillo
Camarillo, CA 93010
(850) 389-7707

California State Lands Representative
Richard B. Greenwood
Statewide Geophysical Coordinator
200 Oceangate, 12th Floor
Long Beach, CA 90802-4331
(562) 590-5201

Other Federal Representative (if not BOEM):

EXHIBIT G

California State Lands Commission Presurvey Notice Requirements for Permittees to Conduct Geophysical Survey Activities

All parts of the Presurvey Notice must be adequately filled out and submitted to the CSLC Staff a minimum of twenty-one (21) calendar days prior to the proposed survey date to ensure adequate review and approval time for the CSLC staff. Note that one or more of the items may require the Permittee to plan well ion advance in order to obtain the b=necessary documentation prior to the Notice due date (e.g., permits from other State or Federal entities.)

Please use the boxes below to verify that all the required documents are included in the Presurvey Notice. If "No" is checked for any item, please provide an explanation in the space provided. If additional space is needed, please attach separate pages.

Yes	No	
X		Geophysical Survey Permit F
	X	Permit(s) or Authorization from other Federal or State agencies (if applicable)
		Explanation: not applicable
X		21-Day Written Notice of Survey Operations to Statewide Geophysical Coordinator/
X		U.S. Coast Guard Local Notice to Mariners/
X		Harbormaster and Dive Shop Notifications
		Explanation: see attached
X		Marine Wildlife Contingency Plan
		Explanation: provided
X		Oil Spill Contingency Plan
		Explanation: provided
X		Verification of California Air Resource Board's Tier 2-Certified Engine Requirement\
		Explanation: See Exhibit A for SV "Tati B"
X		Notification of Geophysical Survey Equipment Used
		Explanation: provided
X		Verification of Equipment Service and/or Maintenance (no older than 12 months; must verify sound output)
		Explanation: All sonar equipment is low energy, description of characteristics and specs. provided.
	X	Permit(s) or Authorization from California Department of Fish and Wildlife for surveys in or affecting Marine Protected Area(s) (if applicable)
		Explanation: See Exhibit E

Note: CSLC staff will also require verification that current biological information was obtained and transmitted as outlined in section 5 of this permit.

OIL SPILL AND MARINE WILDLIFE CONTINGENCY PLAN FOR SYCAMORE COVE BEACH SURVEY

September 2017

PRC 9165 - Multibeam Sonar Survey at Sycamore Cove Beach.

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SECTION I. INTRODUCTION

Gahagan & Bryant will be conducting a multibeam sonar survey along five (5) survey lines oriented perpendicular to shore at Sycamore Cove Beach in Ventura County, CA.

Prior to conducting the multibeam sonar survey, Gahagan & Bryant will notify the California State Lands Commission, publish a notice-to-mariners with the U.S. Coast Guard, and send e-mail notifications to all local marina, harbors and dive shops.

SECTION II. SURVEY AND EQUIPMENT DESCRIPTIONS

Gahagan & Bryant will conduct the multibeam sonar survey using the survey vessel TATI-B that will slowly transit at 5 knots or less along five (5) pre-programmed survey lines oriented perpendicular to shore (Figure 1). Horizontal coordinates for the five (5) survey lines are provided in Table 1 in both Zone 5 of the California Coordinate System (NAD83) and latitude/longitude (NAD83).

Vessel Description

The multibeam sonar survey will be conducted using the SV TATI B. The TATI B is 26-ft long with inboard fuel tanks. The vessel has 130 gallons of fuel capacity and uses approximately 2.0 gallons per hour at survey speed. The SV TATI B has gasoline-powered outboard motors.

SV Tati B will conduct multibeam survey.

The survey vessel "Tati B" will conduct the multibeam sonar survey. The survey vessel "Tati B" is a 26' mono hull vessel built by Thomas Marine in 2009. The vessel is powered by two outboard Honda 4 Stroke gasoline engines with a three-star rating. The SV TATI B uses gasoline as fuel, and only diesel engines are required to comply with the CARB Tier 2 Certification. The TATI B cannot exceed the daily NOx emissions since the vessel only holds 130-gallons of fuel and the anticipated maximum fuel consumption will be less than 30 gallons.

Sonar Descriptions

The sonar equipment used during the survey is low energy. The sonar equipment has been utilized on surveys within the last few months and has performed to the manufacturer's specifications. Once on site and prior to deployment in the water, the equipment undergoes a visual inspection to make sure all connections are secure and there is no damage to any cables/connections or equipment. After a physical check of the equipment, the sonar is powered on deck and checked to make sure that everything is in working order. The manufacturer's internal system software will confirm the system is operating properly and there are no grounding, voltage or fault issues. Once all system checks are verified, the equipment is set to the minimal power settings (if applicable) and deployed. Once deployed, the equipment will be powered up slowly to obtain an optimal data set. The manufacturer's specification sheets are provided in the following sections, along with a description of the sonar equipment characteristics

Multibeam Sonar: The multibeam sonar survey will be conducted using the 26' SV TATI B with a hull-mounted R2Sonic Model 2024 multibeam sonar. Specification sheets for the R2 Sonic multibeam sonar are provided below and on the next page.

2 SONIC SPECIFICATIONS

2.1 Sonic 2024 System Specification

System Feature	Specification
Frequency	400kHz / 200kHz
Beamwidth – Across Track (at nadir)	0.5°@ 400kHz / 1.0° @ 200kHz
Beamwidth – Along Track (at nadir)	1.0° @ 400kHz / 2.0° @ 200kHz
UHR Beamwidth (at nadir)	**0.3° Across Track x 0.6° Along Track**
Number of Beams	256
Swath Sector	10° to 160° (user selectable)
UHR Swath Sector	**10° to 60°** (user selectable)
Maximum Slant Range	1200 metres
Pulse Length	15µSec – 1000µSec
Pulse Type	Shaped Continuous Wave (CW)
Depth Rating	100 metres (3000 metres optional)
Operating Temperature	-10° C to 40° C
Storage Temperature	-30° C to 55° C

Table 2: System Specification

2.2 Sonic 2022 System Specification

System Feature	Specification
Frequency	400kHz / 200kHz
Beamwidth – Across Track (at nadir)	1.0°@ 400kHz / 2.0° @ 200kHz
Beamwidth – Along Track (at nadir)	1.0° @ 400kHz / 2.0° @ 200kHz
UHR Beamwidth (at nadir)	**0.6° Across Track x 0.6° Along Track**
Number of Beams	256
Swath Sector	10° to 160° (user selectable)
UHR Swath Sector	**10° to 60°** (user selectable)
Maximum Slant Range	1200 metres
Pulse Length	15µSec – 1000µSec
Pulse Type	Shaped Continuous Wave (CW)
Depth Rating	100 metres (3000 metres optional)
Operating Temperature	-10° C to 40° C
Storage Temperature	-30° C to 55° C

2.3 Sonic 2024 Dimensions and Weights

Component	Dimensions (L x W x D) / Dry Weight
Receiver Module	480mm x 109mm x 190mm / 12.9kg
Projector	273mm x 108mm x 86mm / 3.3kg
Sonar Interface Module (SIM)	280mm x 170mm x 60mm / 2.4kg
I2NS Sonar Interface Module (SIM)	280mm x 170mm x 126.4mm / 4.2kg
Receive module and Projector mass in water	**5.9kg (Fresh)**

Table 3: Component Dimensions and Mass

2.4 Sonic 2022 Dimensions and Weights

Component	Dimensions (L x W x D) / Dry Weight
Receiver Module	276mm x 109mm x 190mm / 7.7kg
Projector	273mm x 108mm x 86mm / 3.3kg
Sonar Interface Module (SIM)	280mm x 170mm x 60mm / 2.4kg
I2NS Sonar Interface Module (SIM)	280mm x 170mm x 126.4mm / 4.2kg
Receive module and Projector mass in water	**4.0kg (Fresh)**

2.5 Sonic 2024/Sonic 2022 Electrical Interface

Item	Specification
Mains Power	90 – 260 VAC; 45 – 65 Hz
Power Consumption (SIM and Sonar Head)	75 Watt (Sonic 2022: 54 Watt)
Power Consumption (Sonar Head Only)	50W avg.; 90W Peak (Sonic 2022: 35W avg.; 70W Peak)
Integrated Inertial Navigation System (I2NS)	38.4W (SIM and IMU with Antennas)
Uplink/Downlink	10/100/1000Base-T Ethernet
Data Interface	10/100/1000Base-T Ethernet
Sync IN/OUT	TTL
GPS Timing	1PPS; RS232 NMEA
Auxiliary Sensors	RS232 / Ethernet
Deck Cable Length	15 metre (optional to 50 metres)

Table 4: Electrical Interface

2.6 Sonic 2024/2022 Ping Rates (SV = 1500.00m/sec)

RANGE	PING RATE
2 - 7	60.0
10	55.4
15	39.4
20	30.6
25	25.0
30	21.1
35	18.3
40	16.1
50	13.0
70	9.4
100	6.7
150	4.5
200	3.4
250	2.7
300	2.3
400	1.7
450	1.5
500	1.4
700	1.0
1000	0.7
1200	0.6

Table 5: Ping Rate table

WARNING

THE RECEIVE MODULE IS FILLED WITH OIL THAT WILL FREEZE TO A SOLID AT -10°C. STORAGE BELOW THIS TEMPERATURE (TO -30°C) IS POSSIBLE IF THE HEAD IS SLOWLY THAWED OUT PRIOR TO OPERATION.

The operation of a multibeam sonar may result in potential impacts to the marine environment. Potential impacts include hydrocarbon spills and ship strike, harassment, and acoustic effects on sensitive marine life. Ship strikes and harassment could occur while the survey vessel is progressing through the multibeam sonar transects. Acoustic effects could occur while the multibeam sonar is operating.

The following oil spill and marine wildlife contingency plan is provided to serve as the guidance document used during the multibeam sonar survey in order to minimize any and all of the potential effects.

SECTION III. OIL SPILL CONTINGENCY PLAN

The release of hydrocarbons (fuel, lubricants, hydraulic fluid, etc.) into the marine environment can cause significant environmental damage. Gahagan & Bryant minimizes the chances of such releases to the extent possible. The vessel and sonar survey equipment will be maintained in accordance with manufacturer's specifications. Routine maintenance and inspections are conducted by the boat captain to monitor for unusual wear or indications of potential failure in all systems that may cause an accidental hydrocarbon spill.

The sonar survey vessel is trailered, and all fueling is completed at a shore-side gas station while the vessel is on the trailer and out of the water where all spills can be easily contained with no release to an aquatic environment. No fueling of the survey vessel is allowed when the vessel is in the water. While fueling, absorbent pads (3M Type 156 Sorbent Pads) are placed to catch all possible spills. All spills are immediately cleaned using approved materials such as absorbent pads, fuel bibs, and cat litter. All absorbents will be disposed of in properly marked metal containers in accordance with Title 8 General Safety Orders Section 5545.

Training

Only trained personnel are allowed to fuel the vessel. Training includes: proper filling of the vessel's fuel tank, correct deployment of absorbent pads around and under the fueling port, proper insertion of the flexible hose without fuel flowing out of the hose, stress the importance of focused attention on the fueling to monitor for spills so fueling may be stopped as soon as possible to minimize the spill, and the correct use of absorbent materials in addition to the absorbent pads for spills that exceed the deployed pads. Bilge blowers will be operated for 5-minutes after fueling.

Spill Cleanup Equipment Supply Storage

The survey vessel will maintain a stock of no less than 30 absorbent pads and no less than 30 sealable plastic storage bags to contain soiled pads stored near the helm for quick access by the boat captain. One box of rubber gloves and one pair of safety glasses will be stored with the absorbent pads. A fire extinguisher will be present at all times during fueling and on the vessels. Appendix 1 contains an excerpt of the corporate Safety and Health Manual relevant to oil spill prevention and response containing a checklist of actions and the list of agencies to be contacted in the event an accidental spill occurs.

Notifications

All spills will be reported as soon as the spill is contained to Gahagan & Bryant's Office Manager and the project manager. The following information will be reported:

- Your name
- Location/Date/Time
- Type of fuel spilled and approximate volume of fuel spilled
- Current disposition of spill (ongoing/contained/cleaned up)
- Possible health hazard
- Disposition of materials used to clean up spill
- Cause of spill, if known

Gahagan & Bryant will, as needed, notify the appropriate local, state, and federal authorities as well as brief the company's president. Any further legal obligations and responsibilities will be handled by Gahagan & Bryant's president and/or his designee.

SECTION IV. SENSITIVE SPECIES MONITORING AND MITIGATION PLAN

Relevant Regulations

Marine Mammal Protection Act

The Marine Mammal Protection Act (MMPA) prohibits the take of any marine mammal within the waters of the United States, defining "take" as: *harass, hunt, capture, collect, or kill, or attempt to harass, hunt, capture, collect, or kill any marine mammal. This includes, without limitation, any of the following: The collection of dead animals, or parts thereof; the restraint or detention of a marine mammal, no matter how temporary; tagging a marine mammal; the negligent or intentional operation of an aircraft or vessel, or the doing of any other negligent or intentional act which results in disturbing or molesting a marine mammal; and feeding or attempting to feed a marine mammal*."

The 1994 amendments to the MMPA further define harassment as "any act of pursuit, torment, or annoyance which has the potential" to: (A) "injure a marine mammal or marine mammal stock in the wild", or (B) "disturb a marine mammal or marine mammal stock in the wild by causing disruption of behavioral patterns including, but not limited to, migration, breathing, nursing, breeding, feeding, or sheltering." Sections 101 and 102 of the MMPA prohibit intentional killing or harassment of marine mammals but allow incidental contact in the course of normal vessel operations.

Endangered Species Act

The portions of both the Federal and California Endangered Species Act (ESA) that pertain to geophysical surveys specifically prohibit (1) the take of organisms listed under the ESA and (2) damage to their critical habitat. Several whales and sea turtles common to southern California are listed under the ESA, which are described in the Species Summary below.

Potentially Affected Marine Species

Whales

Several species of whale are known to occur in the Southern California Bight and are therefore potentially impacted by offshore geophysical surveys (Table 1). With the exception of the gray whale and blue whale, few whale species are reasonably likely to occur within the nearshore zone where Gahagan & Bryant would survey. Most whale species have predominant distributions and Southern California Bight habitat well offshore of the 20-m isobath (the greatest offshore depth for the survey). Gray whales transit through the Southern California Bight near the coast with their seasonal migrations occurring in the winter and spring.

TABLE 1. WHALES KNOWN TO OCCUR IN THE SOUTHERN CALIFORNIA BIGHT (SCB) AND THEIR MOST COMMON PROXIMITY TO THE COAST (HABITAT), KNOWN SEASONALITY IN THE AREA, AND POTENTIAL FOR IMPACT FROM GEOPHYSICAL SURVEYS.

Whale Species	SCB Habitat	SCB Seasonality	Potential For Impact
Gray whale (*Eschrichtius robustus*)	Nearshore	Fall-Spring	Possible/Unlikely
Blue whale (*Balaenoptera musculus*)	Nearshore to Offshore	Summer	Possible/Unlikely
Fin whale (*B. physalus*)	Offshore	Summer	Unlikely
Sei whale (*B. borealis borealis*)	Offshore	Fall-Spring	Very Unlikely
Humpback whale (*Megaptera novaeangliae*)	Offshore	Fall-Winter	Very Unlikely
Sperm whale (*Physeter macrocephalus*)	Far Offshore	Spring-Fall	Very Unlikely
Minke whale Balaenoptera acutorostrata	Offshore	Unknown	Very Unlikely
Bryde's whale Balaenoptera brydei	Offshore	Unknown	Very Unlikely

Blue whales are less common in the Southern California Bight than gray whales. Unlike gray whales, blue whales seasonally occur in the summer within the Southern California Bight and are therefore more likely to occur in the survey area than gray whales. In any regard, whales of any species are not likely to enter the protection zone (defined in the Marine Biological Resources Protection subsection). All whales common to southern California are protected under the MMPA and the ESA, except the gray whale which has been de-listed from the ESA.

Dolphins (various species)

Several species of dolphin occur along the southern California coast with varying frequency. Pacific white sided (*Lagenorhynchus obliquidens*), common dolphins

(*Delphinus* spp.) and bottlenose dolphin (*Tursiops truncatus*) are the most commonly encountered. Short-finned pilot whales (*Globicephala macrorhynchus*), Risso's dolphin (*Grampus griseus*) and false killer whales (*Pseudorca crassidens*) are less commonly encountered but occasionally occur in Santa Monica Bay. Orcas (*Orcinus orca*) are often observed in spring while the gray whales are migrating north with calves. The presence of the orca is believed to be one reason gray whales migrate so close to shore, as this minimizes the chance of encountering orca pods further offshore. Due to their swimming ability, potential geophysical survey activities pose little real threat to healthy individuals. All dolphins common to southern California are protected by the MMPA, but not ESA.

California Sea Lion (*Zalophus californianus*)

Abundance and Description in the Area: California sea lions are the most common pinniped (seals and sea lions) in southern California. They are present, often in large numbers, throughout bays, harbors, and coastal waters of southern California. California sea lions can be easily distinguished from the other common pinniped of the area, Pacific harbor seal (*Phoca vitulina*), by the presence of an external ear flap. It is present on California sea lions and absent on Pacific harbor seals. There is additional concern over the increasing frequency of sick and injured animals in southern California due to malnutrition and domoic acid poisoning. Behavior of these individuals can be more erratic and unpredictable, and more suspect to further injury than their healthy counterparts. California sea lions are protected under the MMPA, but not the ESA.

Migration: California sea lions are present along the California coast year-round.

Behavior: Curious by nature, California sea lions are commonly observed approaching boats and hauling out on any physical structure they can, including docks, boats, buoys, barges, etc. California sea lions are excellent swimmers with outstanding underwater agility. Their curious nature does, however, expose them to risk. It is expected that the California sea lions will be capable of evading the geophysical survey vessel, but attention should be paid to ensure no animals are affected. Sick or injured individuals will require greater scrutiny.

Pacific Harbor Seal (*Phoca vitulina*)

Abundance and Description in the Area: Pacific harbor seals are typically less abundant than California sea lions. As their name implies, Pacific harbor seals are more commonly observed in the bays and harbors in southern California than along the open coast. When observed along the open coast, Pacific harbor seals are more common in the nearshore waters than offshore. Pacific harbor seals are typically smaller than California sea lions, with black or charcoal coat mottled with white patches, in addition to the lack of an ear flap.

Migration: Pacific harbor seals are present year-round in southern California.

Behavior: Pacific harbor seals are not as naturally curious as California sea lions, but they will approach boats seeking food. They are skilled swimmers and would be capable of evading the geophysical survey vessel and activities. Sick or injured individuals will require greater scrutiny.

Northern Elephant Seal (*Mirounga angustirostris*)

Elephant seals are rarely observed in the nearshore waters of Southern California, but individual animals might be observed by monitors at the site. Elephant seals exhibit

extreme sexual dimorphism in size; males grow to 14' and 5,000 pounds, while females grow to 11' and 1,400 pounds. Female elephant seals forage in the open ocean, while male elephant seals forage along the continental shelf. Elephant seals spend most of their time at sea, and usually only come to land to give birth, breed, and molt. These activities occur at rookeries on offshore islands and remote mainland beaches, none of which are located in Santa Monica Bay. Elephant seals are skilled swimmers and should be capable of evading any adverse effects from the sonar survey, but sick or injured individuals will require greater observations.

Southern Sea Otter (*Enhydra lutris*): Sea otters are rarely observed in Southern Californa but it is possible that an individual sea otter could enter the Protective Zone around the survey area. Sea otters are protected by both the MMPA and the ESA. Sea otters are skilled swimmers and should be capable of evading any adverse effects from the sonar survey, but sick or injured individuals will require greater scrutiny.

Sea Turtles (various species)

Description and Abundance in the Area: Four sea turtle species have been observed in southern California: green sea turtle (*Chelonia mydas*), leatherback sea turtle (*Dermochelys coriacea*), Olive Ridley sea turtle (*Lepidochelys olizacea*) and loggerhead sea turtle (*Caretta caretta*). All are listed as either threatened or endangered under the Federal ESA. The San Gabriel River has been recently identified by the National Marine Fisheries Service (NMFS) as the site of a growing population of green sea turtles. This is in addition to a known population in San Diego Bay. Loggerheads, leatherbacks, and Olive Ridley sea turtles are uncommon in southern California, but they have been observed.

Migration: All sea turtles make extensive spawning migrations. Green sea turtles have been observed in both the summer and winter, with more sporadic observations of the remaining species. The Gulf of California and all along the Baja Peninsula are prominent spawning grounds for most sea turtles, but ongoing research by NMFS and academic researchers suggests some individuals may be residing in southern California.

Behavior: All sea turtles are relatively slow moving and capable of maintaining extended submerged periods. Their typically dark coloration, low profile, and swimming abilities can make them difficult to observe at a distance. This difficulty in identifying sea turtles provides for greater opportunity for accidental take during a survey. Therefore, care should be taken to monitor for their presence and once sighted, extreme caution should be used to ensure no take occurs. This includes temporarily halting all activities once an animal has been spotted within 600 meters (m) of the survey area, the protection zone listed for sonar surveys in the California State Lands Commission's Data Collection Guidelines for Marine Wildlife Monitors (Appendix 2). Activities may resume if the animal has been observed swimming away from the survey area or no sightings have been made for 60 minutes.

Marine Biological Resources Protection

Gahagan & Bryant will provide the following environmental compliance during the multibeam sonar surveys:

1. A National Marine Fisheries Service (NMFS) certified marine mammal observer provided by MBC Applied Environmental Sciences shall be onsite whenever a geophysical survey activity is underway. A single observer aboard the survey vessel is sufficient for the multi beam equipment to be used because it operates at 200 kHz. No protection zone is needed while using the multibeam sonar because its operational frequency (200 kHz) is above the known functional hearing range of marine mammals and sea turtles.

2. Survey activities shall be temporarily stopped as soon as can be safely achieved if a sea turtle or non-pinniped marine mammal is sighted on a potentially intersecting course with the survey vessel. The survey may resume only when the animal has safely transited away from the vessel's course. The vessel's crew will make no effort to divert the animal, but rather wait for the animal to proceed naturally. Pinnipeds are expected to commonly swim around the vessel. Vessel speeds while conducting a side scan survey is 3-4 knots and the multibeam survey is 5-knots, which are presumably slow enough vessel speeds for pinnipeds to easily evade the vessel. No surveying will be conducted near pinniped haul out sites.

Monitoring Plan

Role of Marine Monitors

MBC staff members have been certified as marine mammal monitors by the National Marine Fisheries Service (NMFS). MBC will assign one (1) NMFS-certified marine mammal observer to the survey boat, and the marine wildlife monitor will be onsite during all survey activities. Only one (1) marine mammal monitor is required on the survey boat because the surves will take only about 2-3 hours to complete and the boat is too small to accomodate more than 1 monitor.

The monitor will, to the extent possible, act to prevent collisions with marine wildlife. The monitor will make observations from the passenger seat in the survey boat, next to the boat driver, which offers the best vantage point for observing marine wildlife.

All sightings will be logged on the standard form included in Appendix 2. The form available in Appendix 3, in addtion to the collision reporting items listed below, will be completed, to the extent possible, in the event a sick or injured animal is sighted or if a collision has occurred. After completing the form, marine monitors will report it to the proper agency. The United States Coast Guard (USCG) will be notified if the animal poses a threat to mariners, such as an injured or dead great whale in the work area. Contact information for the California Department of Fish and Wildlife, National Marine Fisheries Service, and USCG are included in Table 2.

TABLE 2. CONTACT LIST FOR MARINE WILDLIFE MONITORING. ALL PROJECT ASSETS IN THE AREA WILL MONITOR VHF CHANNEL 13, 16, OR 67.

Company	Staff/Position Name	Mobile Phone
DFW	Enforcement Dispatch Desk	562-598-1032
NMFS	Stranding Coordinator	562-980-4017

California State Lands Commission	Environmental Planning and Management	916-574-1938
USCG	VHF Marine Radio - Channel 16	

Marine Mammal Observers

MBC will provide one (1) NMFS-certified marine mammal observer aboard the multibeam survey vessel. The NMFS-certified marine mammal observers will include one (1) of the following MBC personnel:

Jen Rankin: NMFS-certified Marine Mammal Observer

Jenny Smith: NMFS-certified Marine Mammal Observer

David Schuessler: NMFS-certified Marine Mammal Observer

Resumes for Ms. Rankin, Ms. Smith, and Mr. Schuessler are provided in Appendix 1.

Pre-Survey Notifications

A Notice to Mariners will be submitted to the United States Coast Guard prior to the multibeam sonar survey. The Notice to Mariners will provide information regarding proposed activities and coordinates of the survey location. In addition, Gahagan & Bryant will notify the local harbormasters' office and dive shops prior to the start of survey activities.

The geophysical survey notification list for the multibeam sonar survey will include:

- Local Notice to Mariners was sent on September 15,2017 to the Commander, 11th Coast Guard District, Building 50-2 Coast Guard Island Alameda, CA 94501-5100. E-Mail: d11Inm@uscg.mil
- Channel Islands Harbor Patrol, gary.histensteiner@ventura.org
- Ventura Harbor Patrol, Jhiggins@venturaharbor.com
- Ventura Dive & Sport, vdsstaff@venturadive.com
- Raptor Dive Charter, Staff@raptordive.com
- Channel Islands Dive Adventures , info@channelislandsdiveadventures.com

Three days prior to the initiation of the survey, Gahagan & Bryant will contact National Oceanic and Atmospheric Administration (NOAA) Fisheries Long Beach office staff and local private whale-watching operations to acquire information on the recently-observed composition and relative abundance of marine wildlife in the survey area. That information will be conveyed to the vessel crew and survey team prior to departure for the survey area.

Marine Protected Areas and Pinniped Haul Out Sites

No marine protected areas or pinniped haul out sites or rookeries are located near the survey area.

Fishing Gear Clearance

In addition to submitting the required Notice to Mariners that will alert commercial fishers of pending survey activities, the survey vessel will traverse the proposed survey corridor to note and record the presence of deployed fishing gear. If fishing gear is observed, the location of fishing gear (buoys) and license number indicated on the gear will be noted, and the California Department of Fish and Wildlife (CDFW) Southern District Enforcement Office will be contacted. No survey lines will be completed within 30 m (100 ft) of any observed fishing gear. The survey crew will not remove or relocate any fishing gear; removal or relocation will only be accomplished by the owner or by an authorized CDFW agent.

The following agencies will be contacted if fishing gear is located within the survey area:

- Enforcement Dispatch Desk for the California Department of Fish and Wildlife, Southern District: (562) 598-1032
- California Department of Fish and Wildlife, Marine Division: (831) 649-2870
- Joint Oil Fisheries Liaison Office (JOFLO): (805) 963-8819

Survey Monitoring and Mitigation Measures

During the data collection efforts, the marine mammal observer will use binoculars to observe the water surface in the general survey area while located at a high vantage point onboard the survey vessel. As specified in the CSLC-issued geophysical survey permit, surveys utilizing equipment with an operating frequency greater than 200 kHz will not require a designated safety zone. The marine mammal observer will have the authority to recommend halting data collecting operations if marine wildlife is observed reacting negatively to the survey-related activities.

The marine mammal observer will also have the authority to recommend continuation or cessation of operations during periods of limited visibility based on the observed abundance of marine wildlife. Periodic reevaluation of weather conditions and reassessment of the continuation/cessation recommendation will be completed by the marine mammal observer. With the incorporation of these measures, and additional mitigation measures listed below, the proposed survey activities have a low potential of injury and/or disturbance to marine wildlife. The following operation-related actions will be implemented in accordance with CSLC permit requirements:

1. Survey operator shall use a “soft start” technique at the beginning of survey activities each day (or following a shutdown) to allow any marine mammal that may be in the Project area to leave before the sound sources reach full energy. The survey operator will initiate each piece of equipment at the lowest practical sound level, increasing the output no greater than six decibels (dB) per five-minute period;

2. During operations, if an animal’s actions are observed to be “irregular” the marine mammal observer will have the authority to recommend the cessation of data collection until the animal moves out of the survey Area. If the behavior is observed, the equipment will be shut-off and will be restarted and ramped-up to full power or will not be started until the animal(s) is/are outside of the survey area;

3. The marine mammal observer will have the authority to recommend halting data collecting operations if a large concentration of diving birds/sea birds is observed in the immediate vicinity;

4. Unless the safety of the vessel or crew would be in jeopardy, avoidance measures instituted during vessel transit will also be implemented during geophysical data collection; and

OBSERVATION RECORDING

The marine mammal observer will record observations on pre-printed forms and will photo-document observations whenever possible. The completed forms will be used as the primary data sources for the post-survey report which will be provided to the CSLC and/or other agencies, if requested.

Collision Response

The Marine Mammal Protection Act (MMPA) requires that collisions with or other survey-related impacts to marine wildlife will be reported promptly to the National Marine Fisheries Service (NMFS) Stranding Coordinator.

If a collision or impacts to marine wildlife occurs, the vessel will stop, if safe to do so. However, the vessel is not obligated to stand by and may proceed after confirming that it will not further damage the animal by doing so. The vessel will then communicate by radio or telephone all details to Gahagan & Bryant's office in California. Upon receiving notice of collision, Gahagan & Bryant will notify the following Federal and State agencies:

- National Marine Fisheries Service, Long Beach, CA. Attention: Justin Viezbicke Stranding Coordinator. Telephone: (562) 980-3230.
- California Department of Fish and Wildlife Los Alamitos, CA. Attention: Enforcement Dispatch Desk. Telephone: (562) 598-1032.
- California State Lands Commission, Sacramento, CA. Attention: Division of Environmental Planning and Management. Telephone: (916) 574-1938.

The vessel operator, with guidance from the marine mammal observer, must document the conditions under which the accident occurred, including the following:

- Location (latitude and longitude) of the vessel when the collision occurred;
- Date and time of collision;
- Speed and heading of the vessel at the time of collision;
- Observation conditions (e.g., wind speed and direction, swell height, visibility in miles or kilometers, and presence of rain or fog) at the time of collision;
- Species of marine wildlife contacted (if known);
- Whether the marine mammal observer was observing for marine wildlife at the time of collision; and
- Name of vessel, vessel owner/operator (the company), and captain or officer in charge of the vessel at time of collision.

It is unlikely that the vessel will be asked to stand by until NMFS or CDFW personnel arrive; however, this will be determined by the NMFS Stranding Coordinator. According to the MMPA, the vessel operator is not allowed to aid injured marine wildlife or recover the carcass unless requested to do so by the NMFS Stranding Coordinator.

Although NMFS has primary responsibility for marine mammals in both State and Federal waters, the CDFW will also be advised that an incident has occurred in State waters affecting a protected species.

Monitoring Report

A technical report will be prepared documenting the Project activities, a summary of observations and any encounters with marine wildlife, and subsequent avoidance actions taken during the survey. The report will be submitted to the California State Lands Commission within two weeks after completion of each field data collection.

BIBLIOGRAPY

Zykov, M. 2013. Underwater Sound Modeling of Low Energy Geophysical Equipment Operations. JASCO document 00600, Version 2.0. Technical Report by JASCO Applied Sciences for CSA Ocean Sciences Inc.

APPENDIX 1

RESUMES FOR MARINE MAMMAL OBSERVERS ABOARD SURVEY VESSELS.

JENNIFER L. RANKIN **MARINE MAMMAL OBSERVER**

EXPERIENCE SUMMARY

Over ten years of experience in ecological monitoring, both terrestrial and marine. Proficient in data collecting and analysis of nearshore marine surveys, especially GIS-based spatial analysis. Serves as MBC's principle GIS analyst and technician in charge of map preparation and analysis. Received certification as Marine Mammal Observer from National Marine Fisheries Services in 2014.

EDUCATION

B.S., Forestry; minor in Environmental Ethics, Humboldt State University, 2003.
Certificate, GIS, California State University Fullerton Extended Education, 2008.

PROFESSIONAL HISTORY

MBC Applied Environmental Sciences. Technician, 2007 to present; Associate Technician, 2007 to 2007; Assistant Technician, 2006 to 2007.

USDA Forest Service, Pacific Northwest Research Station. Forestry Technician May 2005 to November 2005.

USDA Forest Service, Rocky Mountain Research Station. Forestry Technician, June 2004 to October 2004.

USDA Forest Service, Stanislaus National Forest. Information Receptionist, 2002 to 2003.

PROJECT EXPERIENCE

Marine Mammal Monitoring. National Marine Fisheries Service-certified marine mammal observer monitoring construction projects in the Ports of Los Angeles and Long Beach to ensure no impacts to marine mammals as a result of construction activities and associated sound produced.

Kelp Consortium. Image analyst and GIS technician charged with geoprocessing aerial photographs of coastal California from Santa Barbara to the US-Mexico border. Compiles images of giant kelp beds throughout the area, generates map series, and calculates kelp canopy area by California Department of Fish and Game kelp bed designation using Spatial Analyst in the desktop ArcGIS 10.1platform.

Coastal Generating Station NPDES Monitoring Studies. Technician involved with data collection and report preparation for biannual NPDES water quality monitoring at 11 coastal generating stations from Ventura County to San Diego. Clients included the Los Angeles Department of Water and Power, Southern California Edison Company, AES Corporation, Houston Industries, NRG Energy, Inc., Reliant Energy, and Sempra Energy. Monitoring responsibilities sediment and infauna collection using van Veens, intertidal and subtidal surveys.

JENNIFER N. SMITH **Marine Mammal Observer**

EXPERIENCE SUMMARY

Received certification as Marine Mammal Observer from National Marine Fisheries Services in 2014. Ten years of experience at conducting environmental monitoring in southern California. Efficient in data collecting and analysis of nearshore marine surveys. Experience in benthic infauna collection and laboratory sorting, fish and invertebrate taxonomic identification, otter trawl, and beach seines.

EDUCATION

B.S. Marine Biology: California State University, Long Beach. 2007
Relevant Coursework: Fisheries and Conservation, Marine Mammology.

PROFESSIONAL HISTORY

MBC Applied Environmental Sciences. Associate Technician, 2010-present; Assistant Technician, 2009-2010.

Ecorp Consulting, Inc. Aquatic Intern, 2007.

PROJECT EXPERIENCE

Marine Mammal Monitoring. National Marine Fisheries Service-certified marine mammal observer monitoring construction projects in the Ports of Los Angeles and Long Beach to ensure no impacts to marine mammals as a result of construction activities and associated sound produced.

Marine Mammal Care Center. Participated as an animal care assistant working largely with northern elephant seals, sea lions, and harbor seals documenting and improving their health for future release.

Coastal Generating Station NPDES Monitoring Studies. Staff biologist for quarterly and biannual NPDES monitoring studies at 11 coastal generating stations from Ventura County to San Diego County. Tasks include identification of fish and macroinvertebrate captured in trawls. Conducts observations and identifications of marine birds and mammals during field surveys.

Invasive Species Removal in the Santa Margarita River. Assisted on the identification and collection of invasive species using net and beach seines, electric shock fishing. Monitoring the population of native species found during surveys.

DAVID J. SCHUESSLER, JR. **Marine Mammal Observer**

EXPERIENCE SUMMARY

Received certification as Marine Mammal Observer from National Marine Fisheries Services in 2014. Seven years of experience at conducting environmental monitoring in southern California. Efficient in data collection and analysis of nearshore marine surveys. Experienced in stormwater sampling, benthic infauna collection and laboratory sorting, fish and invertebrate taxonomic identification and collection, eelgrass and *Caulerpa* surveys, otter trawl, and beach seines.

EDUCATION

B.S. Marine Biology: California State University, Long Beach. 2010

USC Wrigley Institute of Environmental Studies, Catalina Island. 2009

Relevant Coursework: Fisheries and Conservation Biology, Ecology of Marine Communities.

PROFESSIONAL HISTORY

MBC Applied Environmental Sciences. AssociateTechnician, 10/2010 - Present.

CSULB - Biological Sciences. Assistant Marine Technician, 1/2008 - 9/2008

PROJECT EXPERIENCE

Marine Mammal Monitoring. National Marine Fisheries Service-certified marine mammal observer monitoring construction projects in the Ports of Los Angeles and Long Beach to ensure no impacts to marine mammals as a result of construction activities and associated sound produced.

Coastal Generating Station NPDES Monitoring Studies. Staff biologist for quarterly and biannual NPDES monitoring studies at 11 coastal generating stations from Ventura County to San Diego County. Tasks include identification of fish and macroinvertebrate captured in trawls. Conducts observations and identifications of marine birds and mammals during field surveys.

Oceanographic and Biological Studies. Conducted field studies for a proposed desalination facility offshore Marine Corps Base Camp Pendleton (Oceanside). Study components included: measurements of temperature by thermistor chain, measurement of currents by acoustic Doppler current profilers (ADCPs), trawls, subtidal reef surveys, sediment grabs, and water quality profiles.

APPENDIX 2

OFFSHORE SPILL RESPONSE PLAN

SPILL RESPONSE PLAN

FOR OFFSHORE OPERATIONS

Introduction: This Spill Response Plan (SRP) is in support of Gahagan & Bryant's offshore operations. The purpose of this SRP is to present the procedures and protocols that will be utilized in the event of a spill resulting from offshore survey activities.

For purposes of this SRP, a minor oil spill is defined as five barrels or less and a major spill is defined as more than five barrels.

Spill sources of hydrocarbons are limited to leakage or spillage of fuel or lubricants from vessels or marine equipment used during offshore survey operations, with all volumes carried below the threshold for a major spill. The 26' survey vessel TATI B will be used to conduct offshore work.

While the vessel is considered a potential spill source, the likelihood of a spill is remote because a spill could only occur if the hull of the vessel is breached in the area of the tanks or if a vessel sinks. The vessel is constructed with multiple watertight compartments to isolate flooding and reduce the risk of sinking should their hulls be punctured.

The vessel and equipment refueling will be conducted using Best Management Practices (BMPs) and will be performed in a manner best suitable to minimize the potential for fuel spillage.

Spill Response Team: Gahagan & Bryant's personnel on-site are responsible for reporting, containment, and clean up of any small spills using onsite equipment and procedures. The onsite team will be supervised by the vessel Captain.

Onsite Response Equipment: The onsite spill response team will have access to an appropriate quantity of absorbent pads, which will be maintained onboard. In the event of a spill, the Field Leader will immediately cease project operations in order to apply sorbent pads.

Table 1 lists the minimum onsite spill response equipment that will be maintained onsite for emergency response of miscellaneous spills.

Table 1. Onsite Spill Response Equipment Inventory

Quantity	Equipment Type
30	3M Type 156 Sorbent Pads
30	Sealable Plastic Storage Bags

Notification: An important step in the response procedure is notification to others of an incident. Notification is essential to activate the response organizations, alert company management, obtain assistance and cooperation of agencies, mobilize resources, and comply with local, state, and federal regulations. The order of notification is based on the premise that those parties who can render assistance in controlling or minimizing the impacts of an incident should be notified before those that are remote from the incident. Table 2 presents a matrix for emergency Agency notification. The notification process encompasses the following categories:

- Emergency Agency notification
- Company notification/onsite spill response team activation
- Cleanup contractors (if required)
- Notification of other interested parties
- Periodic progress updates and reports (if necessary)

Table 2. Emergency Agency Notification Matrix

Type of Emergency	Agencies to be Notified	Telephone	Notification Criteria	Notification Time Frame	Information to Report
Spill to Land or Marine Waters	Channel Islands & Ventura Harbor Police	(805) 382-3000, (805) 642-8618 VHF16,12,73	All spills to land or water	Immediately	1. Location of release or threatened release 2. Qty released 3. Type of spill 4. Your name & phone number
	USCG-LA/ Long Beach Marine Safety Office	(310) 521-3801 VHF Radio 16			
	California Department of Fish and Game/ OSPR	(888) 334-2258			
	California Office of Emergency Services	(800) 852-7550			
	National Response Center	(800) 424-8802			
	State Lands Commission	(562) 499-6312			
	California Coastal Commission	Ellen Faurot-Daniels, (415) 904-5285 (work) (415) 201-5792 (pager).			
	Oiled Wildlife	(530) 754-			

	Care Network	9035			
	Minerals Management Service	(805) 389-7775 or (805) 389-7550	Spill entering federal waters only		
Medical Emergencies	Fire Department/ Ambulance	**911**	Medical assistance and/or transport required	ASAP	1. Type of injury 2. Location 3. Condition 4. Action taken 5. No. of victims
	CalOSHA	(415) 737-2932		As required	

The Lempert-Keene Seastrand Oil Spill Prevention and Response Act (SB 2040) requires notification of the California Office of Emergency Services when oil spills occur or threaten to occur from facilities, vessels, or pipelines into California marine waters. The California Code of Regulations implementing SB 2040 requires that the specific information shown in Table 3 be given to the agencies when making notifications.

Table 3. Information Checklist

Name of reporter. Facility name and location Date and time of the spill
Cause (if known -- don't speculate) and location of the spill Estimate of the volume of oil spilled and the volume at immediate risk of spillage Material spilled (e.g., crude oil), and any inhalation hazards or explosive vapor hazards, if known Prevailing sea conditions: • Wave height • Size and appearance of slick • Direction of slick movement • Speed of movement, if known Prevailing weather conditions: • Wind speed • Wind direction • Air temperature Measures taken or planned by personnel on scene • For containment • For cleanup Current condition of the facility Any casualties? ***NOTE: When making reports, record the agency, name of person contacted, and the date and time of notification. Reporting of a spill shall not be delayed solely to gather all the information noted above.***

All actions, including agency notification, should be recorded on the vessel's log book. A regulatory agency address directory is provided in Table 4. Essential agency notifications are further assured by the California Office of Emergency Services and the National Response Center, since they will notify related state and federal agencies. If a spill impacts navigable waters, notification of the National Response Center is mandatory and normally results in simultaneous notification of the U.S. Coast Guard. However, it is recommended that a call be made to the local U.S. Coast Guard office in San Diego at (619) 278-7670. Based on the spill trajectory analysis, if the spill is a threat to the shoreline, the appropriate fire department should also be contacted.

Table 4. Addresses of Regulatory Agencies

NATIONAL RESPONSE CENTER U.S. Coast Guard Headquarters 2100 Second Street SW Washington, D.C. 20593 **MINERALS MANAGEMENT SERVICE** Pacific OCS Regional Office & Camarillo District Office 770 Paseo Camarillo Camarillo, CA 93010 **U.S. COAST GUARD – LA/LONG BEACH MARINE SAFETY OFFICE** 1001 S. Seasjde Ave., BLDG 20 San Pedro, CA 90731 **U.S. DEPARTMENT OF TRANSPORTATION** 111 Grand Avenue, P.O. Box 23660 Oakland, CA 94623 **NATIONAL MARINE FISHERIES SERVICE** 650 Capital Mall Sacramento, CA 95814	**CALIFORNIA DEPARTMENT OF FISH AND GAME** **Office of Spill Prevention and Response (OSPR)** 1730 I Street PO Box 944209 Sacramento, CA 94244 **CALIFORNIA OFFICE OF EMERGENCY SERVICES** 2800 Meadowview Road Sacramento, CA 95832 **CALIFORNIA DIVISION OF SAFETY AND HEALTH** 1655 Mesa Verde Avenue, Room 150 Ventura, CA 93003 **CALIFORNIA STATE LANDS COMMISSION** 330 Golden Shore, Suite 210 Long Beach, CA 90802 **CALIFORNIA COASTAL COMMISSION** 45 Fremont, Suite 2000 San Francisco, CA 94105-2219

Company Notification: Gahagan & Bryant requires that all emergencies be brought to the attention of corporate management and client. The vessel Captain or Field Leader will notify by radio or telephone appropriate corporate managers with an initial assessment of the extent and nature of the spill, and will activate additional company resources if necessary. The contact information for Gahagan & Bryant is provided below:

David J. Eller, Vice President	
Work:	310-521-8127
Cellular:	310-261-1612
E-Mail:	Djeller@gba-inc.com

Marine Spill Scenarios and Response Procedures for Minor Marine Spills: This scenario consists of minor spillage of oil or oily water (less than 5 barrels) from a vessel or deck equipment. Response will consist of deployment of sorbent pads that are stored on the vessels. Table 5 lists the response procedures for a minor marine spill.

Table 5. Minor Marine Oil Spill Response Procedures

Responsible Person	Action
Captain - Contractor	• Assess the spill size and type of material spilled. • Take action to contain the spill and prevent further spillage. • Inform the Project Superintendent as soon as possible as to the source of the spill, type of material spilled and status of control operations. • Maintain surveillance of source and oil slick. • Assist the onsite response team in implementing clean up procedures including deployment of sorbent pads and proper storage and disposal of oily debris and sorbent pads.
Field Leader - Contractor	• Account for all personnel and ensure their safety. • Determine if there is a threat of fire or explosion. • If a threat of fire or explosion exists, suspend all control and/or response operations until the threat is eliminated. • Assess the spill situation to determine the status of response operations, estimate spill volume, estimate speed and direction of oil slick movement and determine resource needs. • Notify the Project Manager.

Table 5. Minor Marine Oil Spill Response Procedures

Responsible Person	Action
Field Leader – Contractor	• Mobilize the onsite spill response team. • Notify appropriate agencies including: – Oceanside Harbor Police VHF 16, (76) 435-4000 – U.S. Coast Guard Marine Safety Office (510) 437-2943 – California Department of Fish and Game/OSPR (916) 445-0045) – National Response Center (800) 424-8802) – California Office of Emergency Services (800) 852-7550) – State Lands Commission (562) 499-6312) – Oil Wildlife Care Network (530) 754-9035 • Supervise response and clean up operations. • File written reports to appropriate agencies.

APPENDIX 3

DATA COLLECTION FORMS FOR

MARINE MAMMAL OBSERVERS

Marine Wildlife Observations Form

Date: _____ Monitor: _____

Time:	Latitude:	Longitude:
Weather:	Cloud Cover:	Glare:
Visibility:	Wind Speed:	Sea State:
Swell Height:	Survey Vessel Activity:	
Marine Wildlife Observations and Interactions:		

Time:	Latitude:	Longitude:
Weather:	Cloud Cover:	Glare:
Visibility:	Wind Speed:	Sea State:
Swell Height:	Survey Vessel Activity:	
Marine Wildlife Observations and Interactions:		

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Marine Environmental Variables Form

Date: _____ Monitor: _____

Time	Latitude	Longitude	Vessel Activity	Weather	Cloud Cover	Glare	Visibility	Wind Speed	Sea State	Swell Height	Comments

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APPENDIX 4

MARINE MAMMAL & REPTILE COLLISION REPORTING INSTRUCTIONS FORM

MARINE MAMMAL AND REPTILE COLLISION REPORTING

If a collision with a marine mammal or reptile occurs, the Permittee shall document the conditions under which the accident occurred, including the following:

1. Vessel location (latitude, longitude) when the collision occurred;
2. Date and time of collision;
3. Speed and heading of the vessel at the time of collision;
4. Observation conditions (e.g., wind speed and direction, swell height, visibility in miles or kilometers, and presence of rain or fog) at the time of collision;
5. Species of marine wildlife contacted (if known);
6. Whether an observer was monitoring marine wildlife at the time of collision; and
7. Name of vessel, vessel owner/operator, and captain officer in charge of the vessel at time of collision.

After a collision, the vessel shall stop, if safe to do so; however, the vessel is not obligated to stand by and may proceed after confirming that it will not further damage the animal by doing so. The vessel will then immediately communicate by radio or telephone all details to the vessel's base of operations, and shall immediately report the incident. Consistent with Marine Mammal Protection Act requirements, the vessel's base of operations or, if an onboard telephone is available, the vessel captain him/herself, will then immediately call the National Oceanic and Atmospheric Administration (NOAA) Stranding Coordinator to report the collision and follow any subsequent instructions. From the report, the Stranding Coordinator will coordinate subsequent action, including enlisting the aid of marine mammal rescue organizations, if appropriate. From the vessel's base of operations, a telephone call will be placed to the Stranding Coordinator, NOAA National Marine Fisheries Service, Southwest Region, Long Beach, to obtain instructions. Although NOAA has primary responsibility for marine mammals in both State and Federal waters, the California Department of Fish and Wildlife will also be advised that an incident has occurred in State waters affecting a protected species.

David Eller

From: David Eller
Sent: Friday, September 15, 2017 8:26 AM
To: 'Monica.deangelis@noaa.gov'
Subject: Marine Mammal Observers for approval under CSLC permit 9165
Attachments: MBC OSMWCP for GBA Multibeam Survey Sycamore.pdf

Ms. Deangelis,

Gahagan & Bryant will be conducting a multi beam survey 14 miles south of Channel Islands Harbor off of Sycamore Cove Beach. Find attached the resumes of three potential Marine Mammal Observers for approval. The MMO's are provided by MBC who we have recently worked with on the Hyperion Outfall surveys. This survey is being conducted under our CSLC permit 9165. Resumes can be found in Appendix A of the document. Please call or email if you have any further questions.

Sincerely,

David J. Eller
Vice President
Gahagan & Bryant Associates
Los Angeles Division
310.521.8127 (W)
310.261.1612 (C)
Djeller@gba-inc.com